REMARKS

Claim 1 has been amended to overcome the informality objection noted by the Examiner.

Claims 1-17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Stine et al, (U.S. 4,096,346) in view of Baker et al (U.S. 5,434,354).

Applicant has amended the claims to place them in condition for allowance and to clearly overcome the Examiner's rejection. Applicant does not agree with the Examiner's rejection, but has amended the claims so that they may obtain an early patent.

Applicant discovered that by utilizing a helical shield under tension to substantially eliminate trapped air on each twisted pair with a particular metal thickness and spatial arrangement he provides a cable having significant advantages over previously shielded twisted pairs. The prior art on the other hand only recognizes that the shield will operate as a barrier to electrical interference. The prior art fails to recognize that the shield can also control electricals along the twisted pair such as capacitance, impedance and attenuation.

The Examiner cites many things that neither Stine et al nor Baker et al suggest or disclose. The Stine et al patent is directed to providing an improved insulation for conductors useful in connecting instrumentation in chemical plants, column 4, lines 24-34. Sine et al does this by providing a chlorinated polyethylene elastomer that has been electron cured. The Stine et al cables would not be useful as a high performance data cable and would not have a rating at least out to 600 MHz with a standard impedance deviation of 3.5 or less. The Baker et al patent discloses that when they use four twisted pairs each of the twisted pairs is <u>not</u> shielded. Baker et al teaches speeds of up to 155Mb/S which is substantially less than that required by all of Applicant's claims which call for applicant's cable to be rated to at least 600 MHz with a standard impedance deviation of 3.5 or less.

Neither Stine et al nor Baker et al disclose or suggest a cable having a rating out to 600 MHz with a standard impedance deviation of 3.5 or less.

The Examiner admits that Stine et al does not disclose a twisted pair cable helically wrapped with a shielding tape overlap of 45-55% at an angle of 30-45°.

The Baker et al patent teaches helically wrapping a bundle of unshielded twisted pairs with a 25% overlap, but does not state at what angle. Baker et al does not contemplate nor suggest any purpose for shielding individual twisted pairs nor that helically wrapping these with a 45-55% overlap and at an angle of 30-45° would produce a data cable as having a rating at least out to 600 MHz with a standard impedance deviation of 3.5 or less. There is no suggestion in either Stine et al or Baker et al that suggests substituting using only the helical bundle wrapping of Baker et al for the individually shielded twisted pairs of Stine et al. Stine et al is concerned with using a chlorinated polyethylene elastomer which has been electron cured and not the shielding for data cables. Such a substitution is only done because of the teachings of applicant's invention. This is not proper and can not be the basis for refusing a patent. As set forth in *In re Kotzab, 55 USPQ2d 1313*, the CAFC stated substantial evidence is needed to support an obvious analysis. "Most, if not all inventions arise from a combination of old elements...Thus, every element of a claimed invention may often be found in the prior art." to establish obviousness...there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the appellant."

Neither Stine et al nor Baker et al disclose a shielding tape having a metal thickness of 0.75 to 1.25 mils. Stine et al teaches on column 3, line 2 that the thickness of the entire composite tape is 0.85 mils. Thus, the thickness of the metal layer would be much less than the 0.75 to 1.25 mils of metal required by the applicant's claims.

The Stine et al drawings show that the metal layer is less than 50% of the layer Mylar i.e., less than .43 mils. Thus, Stine et al does not recognize the importance of having the relatively thick metal layer. The secondary reference Baker et al does not disclose what the metal thickness on their composite tape is. Neither Stine et al nor Baker et al recognize the advantages of using a relatively thick metal layer on the composite shielding tape of individually wrapped twisted pairs

Neither Stine et al nor Baker et al disclose the shielding tape being wrapped around each twisted pair at a tension to eliminate a substantial amount of the air to leave a cross-sectional void area of less than 18% of the cross-sectional area of the shielded twisted pair cable - claims 1-11 and 15-21. Baker et al shows a plurality of loosely wrapped unshielded twisted pairs and does not disclose wrapping the bundle let alone each twisted pair tightly so that the shield conforms to the outer shape of the twisted pair and thus eliminates a substantial amount of air.

Baker (Figs. 1A, 1B and 2) and Stine (Figs. 4 and 6) drawings - the wrapping is not wrapped to eliminate air. These drawings show a non-conforming configuration whereas applicant's drawing Figs 2 and 6 show that the conforming configuration when wrapped with tension to eliminate trapped air

Neither Stine et al nor Baker et al teach such a wrapping or why such is beneficial. Further, when more than one twisted pair is used, Baker et al teaches away from individually helically wrapping each pair.

Neither Stine et al nor Baker et al disclose a data cable as is set forth in our claims 6 and 17. That is, having a rating at least out to 600 MHz and the a standard impedance deviation measured on a 328 ft. or longer cable with at least 350 frequency measurements taken from 1.0 to 600 MHz and said standard impedance deviation is 3.5 or less and calculated around the mean

or average impedance of 90 to 110 ohms with no single standard impedance deviation being greater than 4.5 from the mean or average impedance. To provide a cable that has a standard deviation of 3.5 or less with no single impedance deviation being greater than 4.5 from the mean or average is not contemplated, suggested or disclosed by either Stine et al nor Baker et al. Further, the non-data cable of Stine et al would not provide this nor would the cable of Baker et al which has four unshielded twisted pairs loosely bundled.

The above rejection by the Examiner is based on the skilled artisan having an intimate knowledge of appellant's invention in that neither Stine et al nor Baker et al disclose applicant's basic data cable having individual twisted pair cables helically being wrapped under tension to substantially eliminate trapped air to provide the above noted dated cable. Further, the prior art does not suggest what substitutions should be made to arrive at appellant's invention. The suggestions are made by the Examiner, after reading applicant's invention, and not the prior art. As noted above this can not be the basis for refusing a patent - as set forth by the CAFC in *In re Kotzab, 55 USPQ2d 1313.*

It is requested that the rejection of claims 1, 2, 4, 6, 7, 9, 10, 12, 16, &17 be withdrawn and be allowed as amended. Applicant believes that the application is now in condition for allowance and an early Notice of Allowance is requested.

Respectfully submitted,

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